AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method for determining whether an agent possesses a defined biological activity, the method comprising the steps of:

(a) obtaining an expression measurement of at least one gene population or at least one protein population in living cells contacted with an agent and generating at least one of an efficacy value of the agent, a toxicity value of the agent or a classifier value of the agent;

[[(a)]] (b) making at least one comparison selected from the group consisting of:

(1) comparing [[an]] the efficacy value of the agent to at least one reference efficacy value to yield an efficacy comparison result, wherein each efficacy value represents at least one expression pattern of the same efficacy-related population of genes, or at least one expression pattern of the same efficacy-related population of proteins;

(2) comparing [[a]] the toxicity value of the agent to at least one reference toxicity value to yield a toxicity comparison result, wherein each toxicity value represents at least one expression pattern of the same toxicity-related population of genes, or at least one expression pattern of the same toxicity-related population of proteins; and

(3) comparing [[a]] the classifier value of the agent to at least one reference classifier value to yield a classifier comparison result, wherein each classifier value represents at least one expression pattern of the same classifier population of genes, or at least one expression pattern of the same classifier population of proteins; and

[[(b)]] (c) using the comparison result(s) obtained in step [[(a)]] (b) to determine whether the agent possesses the defined biological activity and to determine the degree of the defined biological activity.

2. (Currently amended) The method of Claim 1 comprising the steps of:

(a) making at least two comparisons from the group consisting of:

(1) comparing an efficacy value of the agent to at least one reference efficacy value to yield an efficacy comparison result, wherein each efficacy value represents at least one

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1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

expression pattern of the same efficacy-related population of genes, or at least one expression pattern of the same efficacy-related population of proteins;

(2) comparing a toxicity value of the agent to at least one reference toxicity value to yield a toxicity comparison result, wherein each toxicity value represents at least one expression pattern of the same toxicity-related population of genes, or at least one expression pattern of the same toxicity-related population of proteins;

(3) comparing a classifier value of the agent to at least one reference classifier value to yield a classifier comparison result, wherein each classifier value represents at least one expression pattern of the same classifier population of genes, or at least one expression pattern of the same classifier population of proteins; and

(b) using the comparison results obtained in step (a) to determine whether the agent possesses the defined biological activity and the degree of the defined biological activity.

3. (Currently amended) The method of Claim 1 comprising the steps of:

(a) comparing an efficacy value of the agent to at least one reference efficacy value to yield an efficacy comparison result, wherein each efficacy value represents at least one expression pattern of the same efficacy-related population of genes, or at least one expression pattern of the same efficacy-related population of proteins;

(b) comparing a toxicity value of the agent to at least one reference toxicity value to yield a toxicity comparison result, wherein each toxicity value represents at least one expression pattern of the same toxicity-related population of genes, or at least one expression pattern of the same toxicity-related population of proteins;

(c) comparing a classifier value of the agent to at least one reference classifier value to yield a classifier comparison result, wherein each classifier value represents at least one expression pattern of the same classifier population of genes, or at least one expression pattern of the same classifier population of proteins; and

(d) using the efficacy comparison result, the toxicity comparison result and the classifier comparison result to determine whether the agent possesses the defined biological

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1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

activity and the degree of the defined biological activity, wherein steps (a), (b) and (c) can occur in any order with respect to each other.

4. (Original) The method of Claim 1 wherein the agent is a chemical agent.

5. (Withdrawn) The method of Claim 1 wherein the defined biological activity is stimulation of a biological response.

6. (Withdrawn) The method of Claim 1 wherein the defined biological activity is inhibition of a biological response.

7. (Withdrawn) The method of Claim 1 wherein the defined biological activity is amelioration of at least one symptom of a disease in a mammal.

8. (Original) The method of Claim 1 wherein the defined biological activity is partial agonist activity with respect to a biological response, or with respect to a protein that mediates a biological response.

9. (Original) The method of Claim 8 wherein the defined biological activity is partial agonist activity with respect to PPARγ.

10. (Withdrawn) The method of Claim 1 wherein the at least one reference efficacy value is the efficacy value of a reference agent that possesses the defined biological activity.

11. (Withdrawn) The method of Claim 1 wherein the at least one reference toxicity value is the toxicity value of a reference agent that possesses the defined biological activity.

12. (Original) The method of Claim 1 wherein the at least one reference classifier value is the classifier value of a reference agent that possesses the defined biological activity.

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1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

13. (Original) The method of Claim 1 wherein at least one member of the group consisting of the efficacy value of the agent, the toxicity value of the agent and the classifier value of the agent is calculated from at least one member of the group consisting of gene expression levels and protein expression levels measured in living cells cultured *in vitro*.

14. (Original) The method of Claim 13 wherein at least two members of the group consisting of the efficacy value of the agent, the toxicity value of the agent and the classifier value of the agent are calculated from at least one member of the group consisting of gene expression levels and protein expression levels measured in living cells cultured *in vitro*.

15. (Original) The method of Claim 13 wherein the efficacy value of the agent, the toxicity value of the agent and the classifier value of the agent are calculated from at least one member of the group consisting of gene expression levels and protein expression levels measured in living cells cultured *in vitro*.

16. (Original) The method of Claim 13 wherein the living cells are selected from the group consisting of heart cells, liver cells and adipocyte cells.

17. (Original) The method of Claim 16 wherein the living cells are 3T3L1 adipocyte cells.

18. (Original) The method of Claim 1 wherein the defined biological activity is the ability to affect a biological process *in vivo*, and wherein at least one member of the group consisting of the efficacy value of the agent, the toxicity value of the agent and the classifier value of the agent is calculated from at least one member of the group consisting of gene expression levels and protein expression levels measured in living cells cultured *in vitro*.

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1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

19. (Original) The method of Claim 18 wherein the biological process is an acute or chronic disease in a mammal.

20. (Original) The method of Claim 1 wherein the defined biological activity is the ability to affect a biological process *in vivo*, and wherein at least two members of the group consisting of the efficacy value of the agent, the toxicity value of the agent and the classifier value of the agent are calculated from at least one member of the group consisting of gene expression levels and protein expression levels measured in living cells cultured *in vitro*.

21. (Original) The method of Claim 20 wherein the biological process is an acute or chronic disease in a mammal.

22. (Original) The method of Claim 1 wherein the defined biological activity is the ability to affect a biological process *in vivo*, and wherein the efficacy value of the agent, the toxicity value of the agent and the classifier value of the agent are calculated from at least one member of the group consisting of gene expression levels and protein expression levels measured in living cells cultured *in vitro*.

23. (Original) The method of Claim 22 wherein the biological process is an acute or chronic disease in a mammal.

24. (Original) The method of Claim 1 wherein the defined biological activity is the ability to affect a biological process in a first living tissue, and wherein at least one member of the group consisting of the efficacy value of the agent, the toxicity value of the agent and the classifier value of the agent is calculated from at least one member of the group consisting of gene expression levels and protein expression levels measured in a second living tissue, wherein the first living tissue is a different type of tissue than the second living tissue.

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1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

25. (Original) The method of Claim 1 wherein the defined biological activity is the ability to affect a biological process in a first living tissue, and wherein at least two members of the group consisting of the efficacy value of the agent, the toxicity value of the agent and the classifier value of the agent are calculated from at least one member of the group consisting of gene expression levels and protein expression levels measured in a second living tissue, wherein the first living tissue is a different type of tissue from the second living tissue.

26. (Original) The method of Claim 1 wherein the defined biological activity is the ability to affect a biological process in a first living tissue, and wherein the efficacy value of the agent, the toxicity value of the agent and the classifier value of the agent are calculated from at least one member of the group consisting of gene expression levels and protein expression levels measured in a second living tissue, wherein the first living tissue is a different type of tissue than the second living tissue.

27. (Original) The method of Claim 1 wherein at least one member of the group consisting of the efficacy-related population of genes and the efficacy-related population of proteins yields at least one efficacy-related gene expression pattern, or efficacy-related protein expression pattern, in response to the agent, that correlates with the presence of at least one desired biological response caused by the agent in a living thing, wherein the at least one efficacy-related gene expression pattern, or at least one efficacy-related protein expression pattern, appears before the desired biological response.

28. (Original) The method of Claim 1 wherein at least one member of the group consisting of the toxicity-related population of genes and the toxicity-related population of proteins yields at least one toxicity-related gene expression pattern, or toxicity-related protein expression pattern, in response to the agent, that correlates with the presence of at least one

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CHRISTENSEN O'CONNOR JOHNSON KINDNESS[PLLC]
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206 682 8100

undesirable biological response caused by the agent in a living thing, wherein the at least one toxicity-related gene expression pattern, or at least one toxicity-related protein expression pattern, appears before the undesirable biological response.

29. (Original) The method of Claim 1 wherein (1) at least one member of the group consisting of the efficacy-related population of genes and the efficacy-related population of proteins yields at least one efficacy-related gene expression pattern, or efficacy-related protein expression pattern, in response to the agent, that correlates with the presence of at least one desired biological response caused by the agent in a living thing, wherein the at least one efficacy-related gene expression pattern, or at least one efficacy-related protein expression pattern, appears before the desired biological response; and (2) at least one member of the group consisting of the toxicity-related population of genes and the toxicity-related population of proteins yields at least one toxicity-related gene expression pattern, or at least one toxicity-related protein expression pattern, in response to the agent, that correlates with the presence of at least one undesirable biological response caused by the agent in a living thing, wherein the at least one toxicity-related gene expression pattern, or at least one toxicity-related protein expression pattern, appears before the undesirable biological response.

30. (Original) The method of Claim 1 comprising the steps of:

(a) making at least one comparison from the group consisting of:

(1) comparing an efficacy value of the agent to a scale of efficacy values to yield an efficacy comparison result, wherein each efficacy value represents at least one expression pattern of the same efficacy-related population of genes, or at least one expression pattern of the same efficacy-related population of proteins;

(2) comparing a toxicity value of the agent to a scale of toxicity values to yield a toxicity comparison result, wherein each toxicity value represents at least one expression

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CHRISTENSEN O'CONNOR JOHNSON KINDNESS[PLLC]
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682 8100

pattern of the same toxicity-related population of genes, or at least one expression pattern of the same toxicity-related population of proteins;

(3) comparing a classifier value of the agent to a scale of classifier values to yield a classifier comparison result, wherein each classifier value represents at least one expression pattern of the same classifier population of genes, or at least one expression pattern of the same classifier population of proteins; and

(b) using the comparison result(s) obtained in step (a) to determine whether the agent possesses the defined biological activity.

31. (Original) The method of Claim 30 comprising the steps of:

(a) making at least two comparisons from the group consisting of:

(1) comparing an efficacy value of the agent to a scale of efficacy values to yield an efficacy comparison result, wherein each efficacy value represents at least one expression pattern of the same efficacy-related population of genes, or at least one expression pattern of the same efficacy-related population of proteins;

(2) comparing a toxicity value of the agent to a scale of toxicity values to yield a toxicity comparison result, wherein each toxicity value represents at least one expression pattern of the same toxicity-related population of genes, or at least one expression pattern of the same toxicity-related population of proteins;

(3) comparing a classifier value of the agent to a scale of classifier values to yield a classifier comparison result, wherein each classifier value represents at least one expression pattern of the same classifier population of genes, or at least one expression pattern of the same classifier population of proteins; and

(b) using the comparison results obtained in step (a) to determine whether the agent possesses the defined biological activity.

32. (Original) The method of Claim 30 comprising the steps of:

(a) comparing an efficacy value of the agent to a scale of efficacy values to yield an efficacy comparison result, wherein each efficacy value represents at least one expression pattern

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1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

of the same efficacy-related population of genes, or at least one expression pattern of the same efficacy-related population of proteins;

(b) comparing a toxicity value of the agent to a scale of toxicity values to yield a toxicity comparison result, wherein each toxicity value represents at least one expression pattern of the same toxicity-related population of genes, or at least one expression pattern of the same toxicity-related population of proteins;

(c) comparing a classifier value of the agent to a scale of classifier values to yield a classifier comparison result, wherein each classifier value represents at least one expression pattern of the same classifier population of genes, or at least one expression pattern of the same classifier population of proteins; and

(d) using the efficacy comparison result, the toxicity comparison result and the classifier comparison result to determine whether the agent possesses the defined biological activity, wherein steps (a), (b) and (c) can occur in any order with respect to each other.

33. (Currently amended) [[A]] An isolated population of oligonucleotide probes consisting of the population of oligonucleotide probes set forth in Table 12 (SEQ ID NOS: 1731-1996, 52, 951, 1450, 957, 1452, 1455, 65, 68, 69, 72, 75, 1457, 967, 1458, 970, 971, 974, 1462, 82, 977, 978, 982, 90, 989, 990, 215, 999-1001, 96, 1468, 1005, 1006, 218, 1014, 1018, 1019).

34-67. (Canceled).

68. (New) A method for determining whether an agent possesses agonist activity with respect to a defined biological response, or with respect to a protein that mediates a defined biological response, the method comprising the steps of:

(a) obtaining an expression measurement of at least one gene population or at least one protein population in living cells contacted with an agent and generating an efficacy value of the agent and a toxicity value of the agent;

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Suite 2800
Seattle, Washington 98101
206.682.8100

(b) comparing the efficacy value of the agent to at least one reference efficacy value to yield an efficacy comparison result, wherein each efficacy value represents at least one expression pattern of the same efficacy-related population of genes, or at least one expression pattern of the same efficacy-related population of proteins;

(c) comparing the toxicity value of the agent to:

(1) a reference agonist toxicity value to yield a agonist toxicity comparison result, and

(2) a reference partial agonist toxicity value,

wherein each agonist toxicity value and partial agonist toxicity value represents at least one expression pattern of the same toxicity-related population of genes that distinguish between the agonist and the partial agonist, or at least one expression pattern of the same toxicity-related population of proteins; and

(d) using the comparison result(s) obtained in step (b) and step (c) to select agents that possesses a desired degree of agonist activity with respect to a biological response, or with respect to a protein that mediates a biological response.

69. (New) The method of Claim 68, wherein the defined biological response is partial agonist activity with respect to PPARγ.

70. (New) The method of Claim 69, wherein the reference partial agonist toxicity value is generated using a known PPARγ partial agonist and the reference agonist toxicity value is generated using a known PPARγ agonist, and wherein the comparison results obtained in step (c) is used to select agents with a toxicity value closer to the toxicity value of the reference partial agonist toxicity value than to the reference agonist toxicity value.

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1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100